

Land, Lines and Levies: A Study of Voluntary Annexations in High Point, NC

The City of High Point used voluntary annexations to grow in area and population during the 1990s. Careful planning is needed to insure the effective provision of municipal services. Conducting modified cost-benefit analyses is one way to gauge the financial costs and revenues associated with potential annexations. This report describes the methodology underlying a computer application that can forecast the financial costs and benefits associated with proposed voluntary annexations. The results constitute a tool that High Point's council and management can use to manage growth.

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URBAN GROWTH IN THE TRIAD

North Carolina's Piedmont Triad, encompassing the cities of Greensboro, Winston-Salem, and High Point, experienced rapid growth during the 1990s. In fact, the population of the Greensboro-Winston-Salem-High Point Metropolitan Statistical Area (MSA) grew by 19.2 percent between 1990 and 2000.¹ With 1,050,304 residents, the MSA is the 37th largest in the United States², while Greensboro, Winston-Salem, and High Point respectively are North Carolina's third, fifth, and eighth largest cities.³ Moreover, the Triad is growing in a low-density rather than high-density manner.⁴ This means that economic expansion in one part of the Triad exerts a ripple effect on neighboring areas. The interaction of development in High Point and growth in Greensboro, for instance, has spurred residential construction in northern High Point.

High Point has not been immune to the Triad's growth. Between 1990 and 2000 the city's population rose by 23.5 percent, bringing the total population to 85,839.⁵ During the same period, High Point's land area increased

by 12 percent.⁶ Voluntary annexations have served as a mechanism for this growth. Furthermore, during the 1990s the city concluded six annexation agreements with neighboring jurisdictions.⁷ These legal documents define the territories that High Point may or may not annex within a specific period. As a result of these agreements, High Point could increase its incorporated land area from 50 square miles to 92 square miles. High Point's potential for growth, coupled with the demand for growth created by the Triad's expansion, may spark the development of land within High Point's annexation area. This would lead to a rise in the number of petitions for voluntary annexations.

VOLUNTARY ANNEXATION IN HIGH POINT

Article 4A of Section 160A of the General Statutes of North Carolina allows municipalities

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to extend their boundaries through annexations. The General Assembly believes that annexation is essential for managing growth and providing effective governmental services. Moreover, the General Assembly permits two types of annexations: involuntary and voluntary. Although the statutory processes regulating involuntary and voluntary annexations are similar, the two annexation types differ in a key way. Voluntary annexations are initiated by landowners who petition to join a municipality, whereas the government initiates involuntary annexations. Though the end result is the same – the annexed land is added to the tax rolls and receives municipal services, involuntary annexations often become spirited political issues.

High Point has the legal authority to annex land voluntarily and involuntarily, but as a matter of custom, the city only conducts voluntary annexations.⁸ In broad strokes, High Point's current system consists of four steps. First, a person who owns land outside of the city limits but within the annexation area files a petition with the City Clerk.⁹ The petitioner typically is a developer who intends to build on empty land. By joining the city the developer receives such governmental services as police and fire protection and access to the municipal utility system. Second, after the petition is received, the city prepares service plans for the proposed annexation. To accomplish this, High Point asks relevant city departments to prepare cost estimates. Third, the estimates are sent to the Planning Department for evaluation and a technical review. Finally, after the city publishes a notice of intent, the City Council conducts a public hearing and votes on the proposed annexation ordinance. If the proposal passes, the land becomes part of the city on the effective date specified in the ordinance.

LIMITS TO THE CURRENT SYSTEM

High Point's current system for evaluating proposed voluntary annexations contains six weaknesses:

- 1) Ignored Revenues – The current system assumes that annexations only will cost the city money. While annexation requires the city to service an area, this does not imply that the annexation automatically will result in a monetary loss. Annexed areas generate property, sales, franchise, and gas revenues, and it is entirely possible that an annexation will generate more revenues than costs. Yet the existing system ignores revenues even though the General Statutes require revenue estimates.
- 2) Short-Term Focus – The current process emphasizes the short-term over the long-term. Annexations that initially appear costly actually may be lucrative a few years later. The benefits simply may not materialize until the entire development is completed. Similarly, an annexation that appears inexpensive in the short-term may contain hidden costs four or five years hence.
- 3) Incomparable Costs – There currently exists little agreement about how departments should prepare cost estimates. Consequently, what one department includes as "operating costs" may differ from what another department includes. The inconsistencies prevent comparisons across departments.
- 4) Missed Costs – Since there appears to be confusion regarding which departments should provide cost estimates, the current system misses relevant costs. Not all affected departments are developing cost estimates and service plans. Part of this problem is attributable to the estimate forms used by High Point. The form is identical for all departments and fails to provide either the specific information that some departments need to compute accurate costs or the flexibility to tailor estimates to the specific nature of the department's work.

- 5) Obscured Costs - The current system evaluates annexations on an individual basis, thereby missing the aggregate costs of multiple annexations. One annexation in a certain area may appear inexpensive, but if 20 distinct parcels in the same area are annexed over time, the combined annexations may necessitate a capital expenditure (e.g. a new fire station).
- 6) "Irrelevant Process" – A feeling exists among some departments that management fails to use the current system for decision making. Some departments therefore provide only rudimentary cost estimates and service plans.

Refining the System

High Point's management team has recognized the current system's weaknesses and the need for more accurate financial estimates. To address this challenge, High Point recruited a team of MPA students from the Institute of Government at The University of North Carolina at Chapel Hill (UNC-CH) to study the city's annexation process.

Funded by the City of High Point and a grant from UNC-CH's Center for Public Service, the team spent the first half of 2001 studying High Point's annexation process, the procedures used by peer cities, and alternate ways of analyzing annexations. The team also consulted with academics who study annexation, budgeting, and financial issues facing local governments in North Carolina. As a result of this study, the team designed a computer spreadsheet that High Point can use to conduct modified cost-benefit analyses of proposed annexations. This report both documents the methodology used to develop the modified cost-benefit analysis and serves as a user's manual for the city employee(s) responsible for the computer application.

METHODOLOGY AND PROCESS

The project began when a team of MPA students from UNC-CH agreed to develop a

methodology that High Point's council and management can use to assess the costs and benefits associated with voluntary annexations of land.

The project's first stage involved gathering information on High Point. Staff members provided information regarding High Point's annexation process. Additionally, the team researched High Point's municipal services, revenue streams, and costs. This information was derived from such sources as city employees, the Fiscal Year 2001 Budget, and the North Carolina Performance Measurement Project.

Next, information regarding voluntary annexations in North Carolina was gathered. The General Statutes were reviewed, and academics at the Institute of Government were consulted. Additionally, the team contacted several peer cities in North Carolina to see how they analyze annexations. Most of the cities were in positions analogous to High Point's, though Durham has made a conscious effort to analyze proposed annexations. The team therefore considered the strengths and weaknesses of Durham's approach.

After gathering information, the team considered various ways for analyzing potential voluntary annexations. The ultimate suggestion was to design a computer spreadsheet that High Point could use to conduct modified cost-benefit analyses (see below). The goal was to create an application that embodied 3 principles:

- 1) Versatility – The application should possess the versatility to analyze the various types of annexations that could occur in High Point.
- 2) Simplicity – The application should possess the simplicity to permit one municipal employee to use it quickly and efficiently.
- 3) Flexibility – The application should possess the flexibility to adapt to changing economic realities.

The team then identified the revenues and costs most directly affected by voluntary annexations. The relevant departments were contacted, and the appropriate officials were interviewed. Based on the information gleaned from the interviews, coupled with the data contained in the budget and the North Carolina Performance Measurement Project, the equations for the modified cost-benefit analysis were developed. Preliminary copies of the spreadsheet then were sent to the relevant departments for comment.

The project's final stage consisted of preparing this document detailing the methodology and spreadsheet and submitting the product for review. The team also trained the municipal employee(s) responsible for the application and presented recommendations to High Point's management team.

WHAT IS MODIFIED COST-BENEFIT ANALYSIS?

Cost-benefit analysis (CBA) is a decision-making tool that evaluates a policy according to some criterion of efficiency.¹⁰ The analytical technique involves identifying and quantifying (typically in monetary terms) all of the costs and benefits associated with a particular policy option. The total costs and benefits then are discounted to determine their present values. Finally, a decision maker compares the result to the criterion (the typical financial criterion is at least to break even), and if the result satisfies the criterion, the policy is deemed worthy.

In its pure form CBA considers every cost and benefit related to a policy option including intangible factors like the environment and quality of life. However, it often is extremely difficult to identify and quantify every conceivable cost and benefit. Is it possible, for instance, to assign a financial value to a clean environment? How much is a clean environment worth, or for that matter, how much is a livable community worth?

In response to this problem, the team from UNC-CH developed a modified cost-benefit analysis that focuses solely on the financial costs associated with annexations.¹¹ Instead of considering every possible cost and benefit, the CBA addresses only financial ones. The methodology estimates both how much it will cost High Point to provide certain services to proposed annexations and how much the city can expect to receive in revenues. The analysis is further limited by a problem unique to CBA in the governmental sector: the lack of natural markets for governmental services.

The public purposes services (e.g. police, fire, and sanitation) provided by a government have no natural markets. Since the government is the sole provider of these services, it is difficult to ascertain true costs. For example, it is impossible to say how much fire protection should cost since the government is the only provider of fire protection. The only guidance governments have for assessing costs comes from benchmarking projects like the North Carolina Performance Measurement Project that allow cities to view their cost relative to other cities.

LIMITATIONS AND ASSUMPTIONS

Like any analytical method, CBA contains certain weaknesses that prevent perfect predictions. CBA also necessitates the use of certain assumptions that may limit further the technique's predictive power. Consequently, decision makers using the spreadsheet designed for High Point need an understanding of the limitations and assumptions inherent in the model.

Limitations

The following five factors limit this analysis of High Point's voluntary annexations:

- 1) Exclusion of Intangible Costs - As mentioned earlier, this CBA only captures the financial costs and benefits associated with annexation. Non-financial factors are excluded, yet these intangible costs still

exist. For example, a straight financial analysis might show that it is financially profitable to open a nuclear waste facility in High Point, but the financial benefits may be dwarfed by the non-monetary environmental and community costs. When making decisions, city management and elected officials need to consider more than just the costs documented in this study. This CBA captures just one set of factors that decision makers should consider.

- 2) Lack of Decision-Making Criteria – CBA evaluates policy options according to some criterion of efficiency, but determining what that criterion should be, at least in a governmental context, is a political act. What determines if an annexation is desirable or not? A proposed development of affordable housing, for instance, may be financially unprofitable, but if a neighborhood needs affordable housing, the non-monetary benefits might far exceed the monetary ones. When deciding upon a proposed annexation, decision makers also must decide upon the appropriate criteria for judging.
- 3) Trade-Off Between Precision and Longevity – When forecasting costs and revenues, a trade-off between precision and longevity exists. Costs and revenues can be assessed accurately in the short-term, but accuracy declines as the timeline grows. A financial prediction for one or two years in the future is more reliable than one for 20 years hence. Yet short-term estimates are less useful for city planning than long-term estimates. This trade-off should be kept in mind when evaluating the numbers generated by the spreadsheet.
- 4) Trade-Off Between Specificity and Flexibility – The CBA developed for High Point aims to be flexible enough to analyze any annexations that may occur within the city's annexation

area. As a result, specificity is sacrificed. More accurate results could be obtained by developing an analysis for a specific annexation, but the model then would not be applicable to other annexations.

- 5) Data Limitations – The quality and availability of data also limits the study. When exact figures were unknown, imprecise, or unavailable, estimates were used. The use of estimates may affect the model's accuracy.

Assumptions

Five assumptions guide this CBA:

- 1) Optimal Service Levels – This model assumes that the service levels provided by city departments during Fiscal Year 2000 are the optimal ones. The model assumes, for instance, that the number of police officers working for High Point during FY'00 was ideal, but that may or may not be true. These are questions that can be answered best by High Point's management team and elected officials. Nevertheless, a benchmark year for costs and services was needed, so FY'00, being the last complete fiscal year, was selected.
- 2) All Areas Receive Equal Service – This model assumes that annexed areas will receive the same levels and quality of services provided to existing neighborhoods. This model also assumes that no impact fees are charged to developers to defray the costs associated with integrating the annexation into the city.
- 3) Only Services Directly Affected are Considered – Like any government, High Point provides an array of municipal services. Some of these services are general ones provided for the common good while others are operated like businesses (e.g. electric). Since the government's business

activities are financially self-supporting, they are excluded from this CBA. Similarly, services that are provided in return for fees (e.g. building inspection) are excluded since the fees theoretically cover the costs. Instead, this CBA focuses on the costs and revenues associated with the provision of governmental services directly affected by annexation. Table #1 identifies the key costs and revenues.

- 4) Conservative Estimating – This analysis uses conservative financial estimates. This means that when faced with a choice between two cost estimates, the higher estimate is used. Similarly, if two revenue figures exist, the lower figure is used.
- 5) Five-Year Time Frame – As mentioned previously, this analysis is limited by the trade-off between precision and longevity. Short-term estimates are more precise but less useful for planning purpose, while long-term estimates are less precise but more useful for planning. In response to the problem, this CBA projects costs and revenues over a five-year period. A five-year time frame customarily is used in CBA since projections of less than five years are considered too proximate to be useful, while projections of more than five years are viewed as too imprecise.

USING THE CBA SPREADSHEET

As mentioned earlier, the spreadsheet application that High Point can use to analyze proposed annexations was designed around three principles: versatility, flexibility, and simplicity. The goal was to create an application that one staff member could use to prepare quick and realistic financial analyses of proposed voluntary annexations.

The spreadsheet consists of thirteen interconnected worksheets that organize costs and benefits on a departmental basis. The last sheet is a summary sheet that unites data from

the various sheets and computes the net discounted benefits (costs) – the final number representing the anticipated financial gain or loss resulting from the annexation.

In keeping with the principle of simplicity, data only needs to be entered into the first two worksheets – the sheets titled “Constants” and “Data.” Entering the information provided by departments on the estimate forms will cause the program to compute automatically all of the necessary values. If the analyst wants to see the precise calculations, he or she can simply click on the appropriate worksheet. Otherwise, the analyst can jump to the worksheet marked “Total” and view the bottom-line estimate.

A RAMBLE THROUGH THE SPREADSHEET

Sheet #1: “Constants” – This sheet contains the citywide values needed to analyze annexations. The sheet contains such data about the city as population, land area, and family size, along with the specific values used by departments. For example, the sheet contains the projection rates used by the Budget Office to project growth in property and sales tax revenues. A general inflation rate also is included. Part of Sheet #1 is pictured at right.

Placing all of these values on one sheet permits the CBA to be updated easily. Each cell contains a cell note explaining from where the value was obtained. At least once a year, ideally around the start of the fiscal year, the constants should be updated to reflect better the realities facing High Point. The values for city population and square mileage, meanwhile, should be updated as often as possible. If the constants are not updated at least annually, the model quickly will become obsolete.

Sheet #2: “Data” – The sheet labeled “Data” is where the information related to a proposed annexation is entered into the computer. Data are entered into the shaded cells, and the information comes from the

City of High Point Annexation Analysis Constant Sheet

Section 1: City Constants

If we are using performance and cost data should we use the pop. # and land area that they give??

Constants

Current Fiscal Year	2001
City Population	80,789
City Square Miles	50
Family Size	2.54

Section 2: Financial Constants

Inflation Factor for Real Property	5%
Inflation Factor for Personal Property	4%
Average Value of Car	\$9,000
Cars Per Dwelling	1.5
Tax Rate	0.622
Tax Collection Rate	0.995
Inflation Factor for Sales Tax Revenues	3%
Total Sales Tax Revenue	\$6,120,023
	<i>per 1000 residents</i>
	\$75,753
Powell Bill Per Capita Reimbursement	\$25
Powell Bill Street Mile Reimbursement	\$1,817
Total Utility Tax	\$3,200,095
	<i>per 1000 residents</i>
	\$39,611
Business Fee	\$50
General Inflation Factor	3%
Discount Rate	6%

Section 3: Department Constants

Police

Number of Authorized Officers	190
Average Personnel Costs	\$42,868
Average Operating Costs	\$21,802
Average Capital Costs	\$3,810
Factor for E-911 Costs	12%

petition that a landowner files with the City Clerk. In the two places where nominal data must be coded, a cell note explains the codes. These data must be entered properly, or the worksheet will compute erroneous values.

This sheet contains two nuances. First, if the proposed annexation is a residential one, the analyst needs to manually scroll to section 2 of the "Data" sheet. In the column labeled "Number of Dwellings" the analyst needs to enter the number of dwellings present for each of the five years. Second, for residential developments, the analyst needs to scroll down to section 3 of the "Data" sheet and enter the estimated unit price in the proper cell. Part of Sheet #2 is pictured at right.

Sheet #3 "Property" – This sheet automatically takes the information entered into the "Data" sheet and computes the anticipated revenues from the taxes levied on real and personal property. Revenues are projected over five years and are increased each year by the growth factor used by the Budget Office or Guilford County. For instance, High Point currently projects a five percent increase in real property, while Guilford County estimates a four percent increase in personal property.

One difficulty in computing property tax revenues came in estimating personal property revenues. Data limitations prevented the inclusion of accurate numbers regarding the average number of cars per High Point resident and the average value of automobiles in High Point. This information is calculated by Guilford County for High Point, but the numbers were unavailable. The values used by Durham therefore were included.

Sheet #4 "Revenue" – This sheet automatically computes the anticipated revenues from sales taxes, franchise taxes, gas taxes, and business fees. The constants used to compute these values are contained in the "constant" sheet. Part of this sheet is pictured on page 36.

Sheet #5 "Benefits" – This sheet combines and summarizes all of the revenues computed on sheets #3 and 4. The totals on this sheet represent the estimated total benefits expected from the proposed annexation.

Sheet #6 "Police" – Estimating the costs associated with police services was difficult due to the varied nature of the department's work. Therefore, this analysis uses the February 2001 edition of the North Carolina Performance Measurement Project to establish the FY'00 ratios of officers per square mile and officers per 1,000 residents. These ratios are applied to the proposed annexation to determine service costs per square mile and per 1,000 residents. In keeping with the use of conservative estimating, the higher cost is selected. Note that the General Statutes view an increase in police service proportional to the population increase attributable to an annexation as an acceptable service plan.

Sheet #7 "Fire" – Since the calculations needed to compute fire costs are rather complex, the spreadsheet breaks the analysis into discrete steps. The key factor is whether or not a voluntary fire department (VFD) currently serves the annexation area. Depending on the answer entered into the "Data" sheet, either Scenario I or Scenario II applies.

Scenario I: VFD Currently Serves Annexation Area: If a VFD operates in the annexation area, then one of three strategies can be pursued by the city.

- I) The city could negotiate a service contract with the VFD. In return for a payment equal to the tax levies lost through annexation, the VFD would continue to serve the annexation area. The payment is calculated by dividing the tax value of the entire VFD area by 100 and multiplying the quotient by the fire tax levy per \$100 valuation.

**City of High Point
Annexation Analysis
Data Entry Screen**

City of High Point Annexation Analysis Data Entry Screen									
Part 1: Descriptive Data									
Annexation Number	Annexation Name	Map-Block-Lot-ID	Acreage	Existing Population	Contiguous	County	Proposed Effective Date	Proposed Zoning	
00-00	IOG	53-628-50	70	0	Yes	1	7/1/2001	3	(if #3 go to section 3)
Part 2: Financial Data									
Time Line	Land Valuation	Building Valuation	Total Valuation	Number of Dwellings	Parcel Population	Non-State Street Miles			
At Annexation	\$50,000	\$0	\$50,000	0	0	0			
Year 1	\$50,000	\$0	\$50,000	20	51	4			
Year 2	\$52,500	\$252,500	\$305,000	40	102	8			
Year 3	\$55,125	\$330,125	\$385,250	55	140	10			
Year 4	\$57,881	\$432,881	\$490,763	75	191	12			
Year 5	\$60,775	\$460,775	\$521,551	80	203	12			
Five Year Financial Totals	\$276,282	\$1,476,282	\$1,752,563						

City of High Point Annexation Analysis Sales, Gas, Utility, and Business Fee Revenues Worksheet

	<i>Fiscal Year 2001</i>	<i>Fiscal Year 2002</i>	<i>Fiscal Year 2003</i>	<i>Fiscal Year 2004</i>	<i>Fiscal Year 2005</i>	<i>5 Year Total</i>
Section 1: Sales Tax Calculations						
Sales Tax Revenue Per 1,000						
Residents	\$75,753	\$78,026	\$80,367	\$82,778	\$85,261	
Parcel Population	51	102	140	191	203	
Total Sales Tax Revenue	\$3,848	\$7,927	\$11,227	\$15,769	\$17,325	\$56,097

Section 2: Gas Tax Calculations (Powell Bill)						
75% Allocation Based on Per Capita Population						
Per Capita Reimbursement Rate	\$25	\$26	\$27	\$28	\$29	
Parcel population	51	102	140	191	203	
Subtotal for Per Capita	\$1,289	\$2,655	\$3,760	\$5,281	\$5,802	\$18,787
25% Allocation Based on Non-State Street Miles						
Reimbursement Rate per Street Mile	\$1,817	\$1,872	\$1,928	\$1,985	\$2,045	
Number of Non-State Street Miles	4	8	10	12	12	
Subtotal for Street Miles	\$7,268	\$14,972	\$19,277	\$23,826	\$24,541	\$89,883
Total Gas Tax Calculations	\$8,557	\$17,627	\$23,037	\$29,107	\$30,343	\$108,670

- 2) This city could service the annexation directly from an existing fire station. High Point also would pay a portion of the VFD's debt. Two different costs are associated with this strategy. This first involves the additional cost to the overall operating budget of the fire department, expressed as a cost per square mile. Second, the city must pay a portion of the VFD's debt. To determine the payment, calculate the ratio of the tax value of the annexation area to the tax value of the entire VFD. Then, multiply the VFD's total outstanding debt by the ratio.
- 3) The city could service the annexation area directly from a new fire station. Again, the city would become responsible for a portion of the VFD's debt, and there are two related costs. If a new station is built, the average fire cost per square mile is applied to the total square mileage of the annexation area. Second, the debt service payment owed to the VFD is computed in the manner explained above.

Scenario 2: No VFD Serves the Area: If no VFD serves the annexation area, then two possible options can be pursued by the city.

- 1) This option resembles Scenario 1, Option 2 with the exception that no debt service is owed to a VFD.
- 2) This option resembles Scenario 1, Option 3 with the exception that no debt service is owed to a VFD.

Note that the computer spreadsheet is designed to choose the most costly option in each scenario to ensure that costs are estimated conservatively. It is possible that another option would cost the city less.

Sheet #8 "Water" & Sheet #9 "Sewer" – Accounting for water and sewer costs associated with annexations proved difficult since High Point

operates these services as enterprise funds. Yet, neither fund is totally self-sustaining.

When calculating annexation costs, the Public Services department must supply information regarding the expected service levels. To establish a baseline, the appropriate FY'00 expenses are divided by High Point's square mileage to produce a cost per square mile. The result is prorated over the proposed annexation's square mileage to yield a cost estimate.

Besides operating costs, there are additional costs involved with water and sewer services such as laying larger lines than needed. Moreover, maintenance costs must be considered. These additional costs are added to the baseline, and the sum represents the total estimated expenses associated with the proposed annexation.

Revenues related to water and sewer services come from one-time fees, fixed charges, and commodity charges. The rates depend on whether the parcel is residential, commercial, or industrial. The computer application is designed to handles the variables.

Commodity charges and fixed rates are the revenues that flow from providing water service. The commodity charges are as follows: \$1.29 per unit for commercial areas, \$1.14 per unit for residential areas, and \$1.00 per unit for industrial parcels. Fixed charges were calculated similarly. The assigned rates are as follows: \$21.50 for commercial areas, \$107.50 for residential areas, and \$924.20 for industrial parcels. In addition to the commodity and fixed charges for water, there is a one-time annexation fee applied to annexations in Forsyth, Davidson, and Randolph counties. The sum of the commodity, fixed, and one-time charges equals the water costs associated an annexation.

Sewer costs are computed similarly to the water ones. The commodity charges equal \$1.86 per unit, regardless of the type of parcel being annexed. The fixed charges, meanwhile, are as follows: \$25.00 for commercial parcels, \$80.00 for residential parcels, and \$40.00 for industrial parcels. Besides the fixed and

commodity charges, there is an industrial surcharge for two services (BOD and SS); these charges equal \$35.06 and \$31.16 and apply only to industrial properties.

Sheet #10 "Transportation" - The

Transportation Department estimates the costs of the signage and traffic signals required by an annexation. These costs include maintenance and the electricity consumed by traffic signals. Costs vary depending on whether the annexed area is residential, commercial, or industrial.

First, one-time costs for signage and signals are computed. The average citywide cost for each zoning type is computed and prorated over the proposed annexation. Second, the ongoing costs for maintenance and electricity are calculated.

In addition to signage and signal costs, two other transportation costs should be considered. These variable costs are the traffic impact assessment (TIA) studies and costs associated with upgrading a Computer Signal System. Since these costs vary from project to project and may not apply in all cases, the numbers must be estimated individually by the Transportation Department and then entered into the model. Once the variable costs (TIA and CSS) are calculated, they are combined with the one-time and ongoing costs to yield the total transportation cost.¹²

Sheet #11 "Solid Waste" - Service costs vary depending on whether the proposed annexation is residential, commercial, or industrial.

There are two kinds of residential areas for solid waste services, each of which is treated differently: single-family (house) and multi-family (apartment, condominium, townhouse). Trash pickup, which includes yard waste as well as large items such as refuse furniture or refrigerators, for single-family residential dwellings is funded by the general fund and currently costs \$100 per residence per year. The city also provides each residence with a small recycling bin, costing \$4.

Trash pickup for multi-family residences comes out of the general fund and varies with the number of dumpsters present in the

development. A single dumpster generally services between 75 and 100 dwelling units. The city contracts with a waste removal firm at the cost of \$14.61 per dumpster per week, for an annual cost of \$759.72.

Trash pickup for commercial areas also varies. If the business is small and generates no more than three trash cans per week, then the city may opt to service the business at a cost of \$100 per year. There is no trash pickup service for industrial areas, and the enterprise must pay for private carting.

Sheet #12 "Parks" - The annexation costs connected to parks and recreation are virtually impossible to assess at this time. Due to the variability in how parks (both large scale and linear) and recreational facilities (both passive and active) are built, there are no average costs per acre or 1,000 persons to apply to an annexation area, and park costs are not included in the "Total" worksheet.

Sheet #13 "Total" - This worksheet summarizes all of the costs and benefits computed previously by the program. Each year's total benefits and costs are discounted by 6% in order to convert all monetary values into present values. The discounted costs and benefits also are summed to produce a five-year total. Next, the discounted costs then are subtracted from the discounted benefits to produce the Net Benefits (Costs). This number expresses how much the city can expect to earn or lose each year, as well as over a five-year period. A sample of this sheet is included on the previous page.

RECOMMENDATIONS


High Point's difficulties in evaluating proposed annexations mirror those confronting other growing cities in North Carolina. Some of these problems stem from the unique nature of the governmental sector. It consequently is impossible to produce perfectly precise estimates. Nevertheless, the CBA described in this report will permit High Point to conduct more refined analyses. To further enhance the

**City of High Point
Annexation Analysis
Total Cost-Benefit Summary**

	Fiscal Year 2001	Fiscal Year 2002	Fiscal Year 2003	Fiscal Year 2004	Fiscal Year 2005	5 Year Total
Section 1: Total Revenues From Annexation						
Property Taxes	\$198,045	\$536,330	\$735,451	\$1,008,597	\$1,104,717	\$3,583,140
Sales Tax	\$3,848	\$7,927	\$11,227	\$15,769	\$17,325	\$56,097
Gas Tax	\$8,557	\$17,627	\$23,037	\$29,107	\$30,343	\$108,670
Utility Tax	\$2,012	\$4,145	\$5,871	\$8,246	\$9,059	\$29,333
Business Tax	\$0	\$0	\$0	\$0	\$0	\$0
Water Revenues	\$1,291	\$1,330	\$1,370	\$1,411	\$1,454	\$6,856
Sewer Revenues	\$962	\$991	\$1,020	\$1,051	\$1,083	\$5,107
Total Estimated Revenues	\$214,715	\$568,351	\$777,975	\$1,064,181	\$1,163,980	\$3,789,203
Total Net Revenues	\$214,715	\$536,180	\$692,395	\$893,507	\$921,981	\$3,258,779
Section 2: Total Costs of Annexation						
Police	\$31,877	\$32,834	\$33,819	\$37,548	\$41,253	\$177,330
Fire	\$38,953	\$23,384	\$24,085	\$24,808	\$25,552	\$136,782
Water	\$23,148	\$23,843	\$24,558	\$25,295	\$26,054	\$122,897
Sewer	\$26,570	\$27,367	\$28,188	\$29,033	\$29,904	\$141,062
Transportation	\$39,600	\$0	\$0	\$0	\$0	\$39,600
Solid Waste	\$168	\$336	\$504	\$672	\$672	\$2,352
Total Estimated Costs	\$160,316	\$107,763	\$111,154	\$117,356	\$123,435	\$620,024
Net Costs	\$160,316	\$101,663	\$98,926	\$98,534	\$97,772	\$557,212
Total Net Benefits (Costs)	\$54,399	\$434,517	\$593,469	\$794,972	\$824,209	\$2,701,567

method's utility, High Point could take the following five steps:

- 1) Tailor the Estimate Forms to the Departments – As mentioned previously, High Point currently asks all departments to prepare cost estimates on a standard form. The form, however, often fails to provide departments with enough information to produce accurate estimates reflective of the department's realities. Instead of using a standard form, specific forms could be developed for each affected department.
- 2) Consider the Process – High Point should ask itself how to best use the CBA methodology. For instance, is the most logical home for the tool in the Department of Planning or the Budget Office? Also, will efforts be made to refine the tool as new cost data becomes available, or will the application be left as it is? Addressing these process questions will render the methodology more useful.
- 3) Update the Spreadsheets – The computer spreadsheet needs to be updated at least annually, or the tool will become obsolete. Additionally, departments should work together to refine the numbers and assumptions operating within the model. The more accurate the departmental cost estimates are, the more accurate the CBA's predictions will be.
- 4) Study Petition Fees – Preparing a cost estimate for a proposed annexation is a process that requires the time of numerous city employees. To help defray these costs, High Point could consider a petition fee. Other jurisdictions in North Carolina require individuals petitioning for voluntary annexations to pay an application fee. Cary, for instance, charges \$150. While a fee would not recoup all of the city's costs, it would help offset them.
- 5) Solicit Departmental Feedback – Some of individuals interviewed for this project

appeared wary of it. Their sentiment was that the CBA would not accurately capture their costs. In spite of its limitations, this tool is a sound way for estimating costs and benefits, and at a minimum, it represents an improvement over High Point's current system. However, the model only is as strong as the information being entered into it. If departments feel their costs are not being represented fairly, they should be given the opportunity to suggest improvements. Collective action is necessary to insure the usefulness of the computer spreadsheet. 

Endnotes

- ¹ United States Census Bureau. (<http://www.census.gov/population/cen2000/phc-t3/tab01.pdf>)
- ² United States Census Bureau. (<http://www.census.gov/population/cen2000/phc-t3/tab03.pdf>)
- ³ North Carolina State Data Center. (http://census.state.nc.us/frame_start_pl.html)
- ⁴ Firestone, David. "The New Look Suburb: Denser or More Far Flung." *The New York Times*. 4/17/01.
- ⁵ North Carolina State Data Center. (http://census.state.nc.us/frame_start_pl.html)
- ⁶ Department of Planning and Development, City of High Point.
- ⁷ These agreements are with Greensboro, Jamestown, Davidson County, Kernersville, Archdale, and Randolph County (Department of Planning and Development, City of High Point).
- ⁸ Throughout the rest of this document, the term "annexation" refers to voluntary annexation.
- ⁹ The General Statutes (160A-58) differentiate between contiguous and satellite annexations. Municipalities are limited in the amount of land in satellite annexations they may hold.
- ¹⁰ This discussion of cost-benefit analysis is based on *Administrative Analysis for Local Government* by David Ammons (1991).
- ¹¹ From this point forward the term CBA refers to the modified CBA used specifically in this project.
- ¹² Formulaically, total transportation costs = (fixed cost per acre * number of acres in proposed annexation) + (utility cost per acre * number of acres in proposed annexation * 5 years) + (maintenance cost per acre * number of acres in proposed annexation * 4 years).